

Remarks

This application has been reviewed in light of the Office Action of December 3, 2002. Claims 1-23 are pending, and all claims stand rejected. In response, claim 21 is amended, and the following remarks are submitted. Reconsideration of this application, as amended, is requested.

Claim 21 is objected to and has been responsively amended. Applicant asks that the Examiner reconsider and withdraw this objection.

Claims 1-3, 6, and 7 are rejected under 35 USC 103 over Ozaki JP 06-037291. Applicant traverses this ground of rejection.

The explanation of the rejection intermixes two different and incompatible structures shown in Ozaki. The first part of the explanation of the rejection as to claim 1 (Office Action of December 3, 2002, page 2, line 19-page 3, line 4) addresses the structure of Figure 2(b) of Ozaki, and the second part of the explanation of the rejection as to claim 1 (Office Action of December 3, 2002, page 3, lines 4-9) addresses the embodiment of Figure 4(b) of Ozaki. That mixing of the teachings regarding these two structures is improper, as they do not relate to the same thing. Ozaki teaches that the structure of Figure 4 is the "prior art" (paragraph [0003], while the structure of Figure 2 is part of the inventive solution of Ozaki (paragraph [0016] et seq.). Thus, Ozaki himself distinguishes between the two approaches.

If the rejection is maintained, Applicant asks that the Examiner confine the assertion of the teachings of Ozaki to one structure or the other, because they are not compatible. The structure shown in Figure 2(b) is segmented in the manner illustrated, and the structure shown in Figure 4(b), which is based on that shown in Figure 4(a), is not. They are inconsistent. Please base any rejection either on the Figure 2(a)-2(c) structure, or on the Figure 4(a)-4(c) structure, but do not mix them because intermixing

of the teachings is not possible for these inconsistent structures.

Further, the structure shown in Figure 4(b) appears to be completely at odds with the structure shown in Figure 2(b). In Figure 2(b), the layer 2 overlies the layer 1, with isolated areas 3 overlying layer 2. In Figure 4(b), reference numeral "3" is indicated to be a continuous layer overlying the layer 1, and reference numeral "2" is indicated to be isolated areas on the continuous layer 3 (pictured inverted in the bonded assembly in this flip-chip design). This lack of interrelation of the structures of Figures 2(b) and 4(b) is so confusing as to be unintelligible. If the rejection is maintained, Applicant asks that the Examiner clarify just what is the physical interrelation of the structure of Figure 2(b), on the one hand, and the structure of Figure 4(b) on the other hand.

The following principle of law applies to all sec. 103 rejections. MPEP 2143.03 provides "To establish prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the single applied prior art reference clearly does not arguably teach some limitations of the claims.

Applicant will do its best to attempt to interpret these inconsistent structures. Even in the construction most favorable to the rejection, Ozaki does not teach the claim limitations. Claim 1 recites in part:

"a first bump interconnect extending from the first supported-structure interconnect location of each of the microelectronic integrated circuits to the first region of its respective supported element, and  
a second bump interconnect extending from the second supported-structure interconnect location of each of the microelectronic

integrated circuits to the second region of its respective supported element."

Referring to Figure 2(b) of Ozaki, the explanation of the rejection asserts that the structure in Ozaki that is said to be the "first region" recited in claim 1 is the n type layer 3, and that the structure which is said to be the "second region" recited in claim 1 is the p type HgCdTe crystal 2 (Office Action of December 3, 2003, page 3, lines 2-3).

Claim 1 requires the "first bump interconnect extending...to the first region and the "second bump interconnect extending...to the second region".

Addressing the structure shown in Figure 4(b) of Ozaki, as the explanation of the rejection does even though it is not the proper structure to be associated with Figure 2(b) of Ozaki and is completely inconsistent with that of Figure 2(b) of Ozaki as pointed out above, none of the bumps 8 extend to the "first region 3"--all of the bumps extend to the "second region 2". To quote the Office Action at page 3, lines 5-7, with identification of the "regions" inserted in brackets: "a first bump interconnect ((8) on the left) (see Fig. 4b) extending from the first supported-structure interconnect location to the first region [previously identified as first region (3) at page 3, line 2 of the Office Action] of its respective supported element." If this argument is correct, then at least some of the bump interconnects 8 of Figure 4(b) of Ozaki must extend to a first region 3, but none do. They all clearly extend to the second region 2. The bumps 8 that are the leftmost and second-from-left both clearly extend to the "second region 2".

Claim 1 also recites in part:

"the first region of each of the supported islands is physically discontinuous from the first region of each of the other supported islands, and

the second region of each of the supported islands is physically discontinuous from the second region of each of the other supported islands"

Figure 4(b) does not show any such structure. The attempt to mix teachings of the “prior art” structure of Figure 4(b) with the physically incompatible inventive structure of Figure 2(b) is not proper for the reasons stated above.

If the rejection is maintained, Applicant asks that Examiner clarify the rejection responsive to the points raised above, and also respond to the points raised in the preceding paragraphs. Any such response should be made in a nonfinal rejection, as the present rejection is so confusing that Applicant will need a full chance to respond and amend the claims if necessary, should some satisfactory explanation be presented.

This rejection is based on an assertion of “well known in the art” (at two places) and “well known design and fabrication techniques”. “Well known” is not a class of statutory prior art recognized in 35 USC 102 or 35 USC 103. Applicant traverses this substitution of asserted “well known” prior art for a statutory prior art reference as applied in the context of the claim. Applicant requests that, if the rejection is maintained, the Examiner apply a statutory prior art reference. MPEP 2144.03. Absent such an application of statutory prior art, Applicant requests that the rejection be withdrawn.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 4 and 8-23 are rejected under 35 USC 103 over Ozaki in view of Watton ‘256. Applicant traverses this ground of rejection.

Ozaki has been discussed above, and that discussion and the associated requests are incorporated here. These discussed points are relevant here because claim 4 depends from claim 1, and independent claims 8, 16, and 18 have similar relevant limitations and the same arguments are made in the explanations of the rejection. Again, there is an improper intermixing of the teachings of the structures of Figures 2(b) and 4(b) of Ozaki. Ozaki does not provide the required basic teaching of the structure, and Watton does not provide any helpful teaching along these lines.

Watton teaches a structure that is so different from that of Ozaki that Applicant cannot see how to interrelate their teachings. There is no “physically discontinuous”

structure in Watton. The elements indicated in the explanation of the rejection to be an "array of detector islands (5,8)" are in fact an interconnect layer 5 and electrically conducting channels or interconnect channels 8 (Watton, col. 5, lines 20-23). The electrically conducting channels 8 are holes or pores filled with an electrically conducting material (col. 5, lines 28-34). These filled holes or pores, commonly termed "vias" in the art, do not create isolated islands--they are simply holes through the otherwise continuous interconnect layer 5. They only appear to create isolated islands because the sectional view of the drawings is taken in the plane of the electrically conducting channels 8. The plan views of Figures 4-5 give a better idea of the continuous nature of the interconnect layer 5.

Thus, Applicant incorporates from the response to the first rejection the discussion of the failure of Ozaki to teach certain limitations of the claims. Watton adds nothing that would remedy these shortcomings of the teachings of the primary reference.

The present rejection seeks to perform a hindsight reconstruction based upon unrelated references, which is technically unsupported and is legally improper.

The case authority and the MPEP provide guidance on this point. The present rejection is a sec. 103 combination rejection. It is well established that a proper sec. 103 combination rejection requires more than just finding in the references the elements recited in the claim (but which was not done here). To reach a proper teaching of an article or process through a combination of references, there must be stated an objective motivation to combine the teachings of the references, not a hindsight rationalization in light of the disclosure of the specification being examined. MPEP 2143 and 2143.01. See also, for example, In re Fine, 5 USPQ2d 1596, 1598 (at headnote 1) (Fed.Cir. 1988), In re Laskowski, 10 USPQ2d 1397, 1398 (Fed.Cir. 1989), W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 311-313 (Fed. Cir., 1983), and Ex parte Levengood, 28 USPQ2d 1300 (Board of Appeals and Interferences, 1993); Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351 (Board of Appeals 1984). As stated in In re Fine at 5 USPQ2d 1598:

"The PTO has the burden under section 103 to establish a prima facie case of obviousness. [citation omitted] It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references."

And, at 5 USPQ2d 1600:

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

Following this authority, the MPEP states that the examiner must provide such an objective basis for combining the teachings of the applied prior art. In constructing such rejections, MPEP 2143.01 provides specific instructions as to what must be shown in order to extract specific teachings from the individual references:

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."

\* \* \* \* \*

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)."

\* \* \* \* \*

"A statement that modifications of the prior art to meet the

claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. Ex parte Levengood, 28 USPQ2d 1300 (Bd.Pat.App.& Inter. 1993)."

Here, there is set forth no objective basis for combining the teachings of the references in the manner used by this rejection, and selecting the helpful portions from each reference while ignoring the unhelpful portions. An objective basis is one set forth in the art or which can be established by a declaration, not one that can be developed in light of the present disclosure. If the rejection is maintained, Applicant asks that the Examiner set forth the objective basis found in the references themselves for combining the teachings of the references.

This rejection is also based in part on assertions of "well known". The prior discussion and requests of this point are incorporated here.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claim 5 is rejected under 35 USC 103 over Ozaki in view of Shieh '225. Applicant traverses this ground of rejection.

Ozaki has been discussed above, and that discussion and the associated requests are incorporated here. These discussed points are relevant here because claim 5 depends from claim 1. Again, there is an improper intermixing of the teachings of the structures of Figures 2(b) and 4(b) of Ozaki. Ozaki does not provide the required basic teaching of the structure, and Shieh does not provide any helpful teaching along these lines. Shieh has no teachings relevant to either of the points of distinction of claim 1 with Ozaki.

Thus, Applicant incorporates from the response to the first rejection the

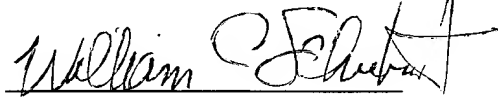
discussion of the failure of Ozaki to teach certain limitations of the claims. Shieh adds nothing that would remedy these shortcomings of the teachings of the primary reference.

Applicant also incorporates the prior discussion of the need for an objective basis for combining the teachings, and the associated requests.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Respectfully submitted,

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A handwritten signature in cursive script, appearing to read "William Schubert", written over a horizontal line.

William Schubert

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

underlined material is to be inserted, [bracketed] material is to be deleted, and --material set off by dashes-- is to be added.

Claims:

21. (Amended) The method of claim 18, including an additional step, after the step of preparing and before the step of joining the detector array, of removing the detector substrate.